

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-12. (Canceled)

13. (Currently Amended) A method for manufacturing a semiconductor device, comprising the steps of:

forming a gate electrode over a substrate having an insulating surface by discharging a first conductive material;

laminating a semiconductor layer, a channel protection layer, and a semiconductor layer having one of n-type or p-type conductivity over the gate electrode;

forming a pixel electrode over the substrate by discharging a second conductive material;

forming source or drain wirings over a semiconductor layer having the one of n-type or p-type conductivity by discharging a third conductive material; and

performing heat treatment over the gate electrode, and the source and drain wirings by a lamp or a laser beam.

14. (Currently Amended) A method for manufacturing a semiconductor device according to claim 13, wherein the first conductive material ~~[[layer]]~~ and the second conductive material are is formed discharged under reduced pressure.

15. (Original) A manufacturing method of a semiconductor device according to Claim 14,

wherein the reduced pressure is 1×10^2 to 2×10^4 Pa.

16. (Original) A manufacturing method of a semiconductor device according to claim 13, wherein said semiconductor device is incorporated into at least one selected from the group consisting of a display device, a personal computer and a portable image reproduction device.

17. (Currently Amended) A method of manufacturing a semiconductor device comprising:
forming a plurality of gate wirings and a plurality of gate electrodes over a substrate by discharging a first conductive material;

performing a first heat treatment over the plurality of gate wirings and the plurality of gate electrodes by a lamp or a laser beam[[,]];

forming an insulating film over the plurality of gate wirings;

laminating a plurality of semiconductor layers, a plurality of channel protection layers, and a plurality of semiconductor layers having one of n-type or p-type conductivity over the insulating film;

forming a plurality of pixel electrodes arranged in a matrix form over the substrate by discharging a second conductive material;

performing a second heat treatment over the plurality of pixel electrodes by a lamp or a laser beam;

forming a plurality of source wirings over the plurality of semiconductor layers having one of n-type or p-type conductivity by discharging a third conductive material wherein said plurality of source wirings extend across said plurality of gate wirings; and

performing a third heat treatment over the plurality of source wirings by a lamp or a laser beam.

18. (Currently Amended) A method for manufacturing a semiconductor device according to claim 17, wherein the first conductive material, the second conductive material and the third conductive material are ~~formed~~ discharged under reduced pressure.

19. (Original) A manufacturing method of a semiconductor device according to Claim 18, wherein the reduced pressure is 1×10^2 to 2×10^4 Pa.

20. (Original) A manufacturing method of a semiconductor device according to claim 17, wherein said semiconductor device is incorporated into at least one selected from the group consisting of a display device, a personal computer and a portable image reproduction device.

21. (Currently Amended) A method of manufacturing a semiconductor device comprising:
forming a plurality of gate wirings and a plurality of gate electrodes over a substrate by discharging a first conductive material;

performing a first heat treatment over the plurality of gate wirings and the plurality of gate electrodes by a lamp or a laser beam;

forming a first insulating film over the plurality of gate wirings;

laminating a plurality of semiconductor layers, a plurality of channel protection layers, and a plurality of semiconductor layers having one of n-type or p-type conductivity over the first insulating

film;

forming a plurality of pixel electrodes arranged in a matrix form over the substrate by discharging a second conductive material[[,]];

performing a second heat treatment over the plurality of pixel electrodes by a lamp or a laser beam[[,]];

forming a plurality of source wirings over the plurality of semiconductor layers having one of n-type or p-type conductivity by discharging a third conductive material wherein said plurality of source wirings extend across said plurality of gate wirings;

performing a third heat treatment over the plurality of source wirings by a lamp or a laser beam[[,]]; and

forming a second insulating film over the plurality of source wirings.

22. (Currently Amended) A method for manufacturing a semiconductor device according to claim 21, wherein the first conductive material, the second conductive material and the third conductive material are ~~formed~~ discharged under reduced pressure.

23. (Original) A manufacturing method of a semiconductor device according to Claim 22, wherein the reduced pressure is 1×10^2 to 2×10^4 Pa.

24. (Original) A manufacturing method of a semiconductor device according to claim 21, wherein said semiconductor device is incorporated into at least one selected from the group consisting of a display device, a personal computer and a portable image reproduction device.

25. (New) A method of manufacturing a semiconductor device comprising:

- forming a semiconductor island over a substrate;
- forming an insulating film over the semiconductor island;
- forming a gate electrode and a gate wiring by discharging a first conductive material;
- performing a first heat treatment over the gate wiring and the gate electrode by a lamp or a laser beam;
- doping an impurity element having a conductive type of n-type or p-type into the semiconductor island using the gate electrode as a mask;
- forming an interlayer insulating film over the gate electrode;
- forming source and drain wirings over the interlayer insulating film by discharging a second conductive material; and
- performing a second heat treatment over the source and drain wirings by a lamp or a laser beam;
- forming a first electrode over the source and drain wirings by discharging a third conductive material; and
- performing a third heat treatment over the first electrode by a lamp or a laser beam.

26. (New) A method for manufacturing a semiconductor device according to claim 25, wherein the first conductive material, the second conductive material and the third conductive material are discharged under reduced pressure.

27. (New) A manufacturing method of a semiconductor device according to Claim 25, wherein the reduced pressure is 1×10^2 to 2×10^4 Pa.

28. (New) A manufacturing method of a semiconductor device according to claim 25, wherein said semiconductor device is incorporated into at least one selected from the group consisting of a display device, a personal computer and a portable image reproduction device.

29. (New) A manufacturing method of a semiconductor device according to claim 25, wherein the method further comprising:

forming an electroluminescent layer by discharging a fourth conductive material; and

forming a second electrode over the electroluminescent layer by discharging a fifth conductive material.

30. (New) A manufacturing method of a semiconductor device according to claim 25, wherein the semiconductor island is an amorphous silicon.

31. (New) A manufacturing method of a semiconductor device according to claim 25, wherein the first electrode is an anode electrode.

32. (New) A method of manufacturing a semiconductor device comprising:

forming a semiconductor island over a substrate;

forming an insulating film over the semiconductor island;

forming a gate electrode and a gate wiring by discharging a first conductive material, wherein the gate electrode is formed by discharging the first conductive material from a first ink-jet unit while the gate wiring is formed by discharging the first conductive material from a second ink-jet unit;

performing a first heat treatment over the gate wiring and the gate electrode by a lamp or a laser beam;

doping an impurity element having a conductive type of n-type or p-type into the semiconductor island using the gate electrode as a mask;

forming an interlayer insulating film over the gate electrode;

forming source and drain wirings over the interlayer insulating film by discharging a second conductive material;

performing a second heat treatment over the source and drain wirings by a lamp or a laser beam;

forming a first electrode over the source and drain wirings by discharging a third conductive material wherein first electrode is formed by discharging the third conductive material from the second ink-jet unit; and

performing a third heat treatment over the first electrode by a lamp or a laser beam,

wherein the number of ink-heads provided in the second ink-jet unit is larger than that provided in the first ink-jet unit.

33. (New) A method for manufacturing a semiconductor device according to claim 32, wherein the first conductive material, the second conductive material and the third conductive

material are discharged under reduced pressure.

34. (New) A manufacturing method of a semiconductor device according to Claim 32, wherein the reduced pressure is 1×10^2 to 2×10^4 Pa.

35. (New) A manufacturing method of a semiconductor device according to claim 32, wherein said semiconductor device is incorporated into at least one selected from the group consisting of a display device, a personal computer and a portable image reproduction device.

36. (New) A manufacturing method of a semiconductor device according to claim 32, wherein the method further comprising:

forming an electroluminescent layer by discharging a fourth conductive material; and

forming a second electrode over the electroluminescent layer by discharging a fifth conductive material.

37. (New) A manufacturing method of a semiconductor device according to claim 32, wherein the semiconductor island is an amorphous silicon.

38. (New) A manufacturing method of a semiconductor device according to claim 32, wherein the first electrode is an anode electrode.

39. (New) A method of manufacturing a semiconductor device comprising:

forming a plurality of semiconductor islands over the substrate;
forming an insulating film over the plurality of semiconductor islands;
forming a plurality of gate wirings, and a plurality of gate electrodes by discharging a first conductive material;
performing a first heat treatment over the plurality of gate wirings and the plurality of gate electrodes by a lamp or a laser beam;
doping an impurity element having a conductive type of n-type or p-type into the plurality of semiconductor islands using the plurality of gate electrodes as a mask;
forming an interlayer insulating film over the plurality of gate electrodes;
forming a plurality of source and drain wirings over the interlayer insulating film by discharging a second conductive material;
forming a plurality of first electrodes arranged in a matrix form over the plurality of source and drain wirings by discharging a third conductive material; and
performing a third heat treatment over the plurality of first electrodes by a lamp or a laser beam.

40. (New) A method for manufacturing a semiconductor device according to claim 39, wherein the first conductive material, the second conductive material and the third conductive material are discharged under reduced pressure.

41. (New) A manufacturing method of a semiconductor device according to Claim 39, wherein the reduced pressure is 1×10^2 to 2×10^4 Pa.

42. (New) A manufacturing method of a semiconductor device according to claim 39, wherein said semiconductor device is incorporated into at least one selected from the group consisting of a display device, a personal computer and a portable image reproduction device.

43. (New) A manufacturing method of a semiconductor device according to claim 39, wherein the method further comprising:

forming a plurality of electroluminescent layers by discharging a fourth conductive material;
and

forming a plurality of a second electrode over the plurality of electroluminescent layers by discharging a fifth conductive material.

44. (New) A manufacturing method of a semiconductor device according to claim 39, wherein the plurality of semiconductor islands is an amorphous silicon.

45. (New) A manufacturing method of a semiconductor device according to claim 39, wherein the plurality of first electrodes is an anode electrode.

46. (New) A method of manufacturing a semiconductor device comprising:

forming a plurality of semiconductor islands over the substrate;

forming an insulating film over the plurality of semiconductor islands;

forming a plurality of gate wirings, and a plurality of gate electrodes by discharging a first

conductive material, wherein the plurality of gate electrodes are formed by discharging the first conductive material from a first ink-jet unit while the plurality of gate wirings are formed by discharging the first conductive material from a second ink-jet unit;

performing a first heat treatment over the plurality of gate wirings and the plurality of gate electrodes by a lamp or a laser beam;

doping an impurity element having a conductive type of n-type or p-type into the plurality of semiconductor islands using the plurality of gate electrodes as a mask;

forming an interlayer insulating film over the plurality of gate electrodes;

forming a plurality of source and drain wirings over the interlayer insulating film by discharging a second conductive material;

forming a plurality of first electrodes arranged in a matrix form over the plurality of source and drain wirings by discharging a third conductive material, wherein plurality of first electrodes are formed by discharging the third conductive material from the second ink-jet unit; and

performing a third heat treatment over the plurality of first electrodes by a lamp or a laser beam,

wherein the number of ink-heads provided in the second ink-jet unit is larger than that provided in the first ink-jet unit.

47. (New) A method for manufacturing a semiconductor device according to claim 46, wherein the first conductive material, the second conductive material and the third conductive material are discharged under reduced pressure.

48. (New) A manufacturing method of a semiconductor device according to Claim 46, wherein the reduced pressure is 1×10^2 to 2×10^4 Pa.

49. (New) A manufacturing method of a semiconductor device according to claim 46, wherein said semiconductor device is incorporated into at least one selected from the group consisting of a display device, a personal computer and a portable image reproduction device.

50. (New) A manufacturing method of a semiconductor device according to claim 46, wherein the method further comprising:

forming a plurality of electroluminescent layers by discharging a fourth conductive material;

and

forming a plurality of a second electrode over the plurality of electroluminescent layers by discharging a fifth conductive material.

51. (New) A manufacturing method of a semiconductor device according to claim 46, wherein the plurality of semiconductor islands is an amorphous silicon.

52. (New) A manufacturing method of a semiconductor device according to claim 46, wherein the plurality of first electrode is an anode electrode.